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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,643	11/13/2003	Yiping Fan	HYPERBAND-03	8977

33139 7590 03/22/2007  
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EXAMINER
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WANG, TED M

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/712,643	<b>Applicant(s)</b> FAN ET AL.	
	<b>Examiner</b> Ted M. Wang	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-21 is/are allowed.
- 6) ☒ Claim(s) 1-3, 9, 10 and 12 is/are rejected.
- 7) ☒ Claim(s) 4-8, 11 and 13-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 9, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balanchard et al. (US 5,629,929) in view of Papasakellariou et al. (US 6,904,106).

- With regard claim 1, Balanchard et al. discloses a method for despreading (Fig.3 and column 1 lines 58-60) a received spread spectrum signal, comprising the steps of:

transforming said received signal (Fig.3 element 56);

multiplying (Fig.3 elements 71-1 – 70-N) said transformed signal with a set of transformed spreading codes (Fig.3, output of elements 72-1 – 72-N).

Balanchard et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching summing said multiplied signal to generate a despread signal.

However, Papasakellariou et al. teaches summing said multiplied signal to generate a despread signal (Fig.5 elements 171 – 174 and column 7 lines 1-2) in

order to recover the received signal and reduce the interference and complexity of the rake receiver (column 6 lines 1-17) to improve system quality and cost. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by Papasakellariou et al. in which summing said multiplied signal to generate a despread signal, into Balanchard's interference canceling rake receiver so as to improve system quality and cost.

- With regard claim 2, Balanchard et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching including an additional step after said summing step for canceling by-products from said despread signal.

However, Papasakellariou et al. teaches including an additional step (Fig.5 elements 181-184) after said summing step for canceling by-products from said despread signal (column 5 line 47 – column 6 line 17) in order to recover the received signal and reduce the interference and complexity of the rake receiver (column 6 lines 1-17) to improve system quality and cost. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by Papasakellariou et al. in which including an additional step after said summing step for canceling by-products from said despread signal, into Balanchard's interference canceling rake receiver so as to improve system quality and cost.

- With regard claim 3, Balanchard et al. further discloses wherein said transforming step and said transformed spreading codes use the same transformation (Fig.5 elements 56, FFT<sub>c</sub> and 72-N, FFT, where N= 1 to N).
- With regard claim 9, Balanchard et al. and Papasakellariou et al. disclose all of the subject matter as described in the above paragraph except for specifically teaching down sampling said transformed signal.

However, Papasakellariou et al. teaches down sampling said transformed signal (column 2 lines 47 – 56) in order to recover the received signal and reduce the interference and complexity of the rake receiver (column 6 lines 1-17) to improve system quality and cost. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method as taught by Papasakellariou et al. in which down sampling said transformed signal, into Balanchard's interference canceling rake receiver so as to improve system quality and cost.

All other limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.

- With regard claim 10, all other limitation is contained in claims 9 and 2. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 12, all other limitation is contained in claims 9 and 3. The explanation of all the limitation is already addressed in the above paragraph.

Where

***Allowable Subject Matter***

3. Claims 18-21 are allowed.
4. Claims 4-8, 11 and 13-17 are objected to as being dependent upon an objected claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is an examiner's statement of reasons for allowance.
  - The prior art fails to teach a method of Claims 18-21 that specifically comprises the following:
    - The instant application is deemed to be directed to a non-obvious improvement over the admitted prior art of the instant application and the invention patented in Pat. No. US 6,904,106, US 6,707,846 and US 5,629,929. The improvement comprises "splitting two bits from a spreading code alternately into I and Q data; converting said I and Q data; inserting zeros alternately into said I and Q data; inserting an initial condition for said I and Q data; and calculating transformed codes as a function of said I and Q data." as recited in combination with other limitation in claim 18.

***Conclusion***

6. Reference(s) US 6,707,846 is cited because they are put pertinent to the correlation energy detection for a radio communication system. However, none of references teach detailed connection as recited in claim.

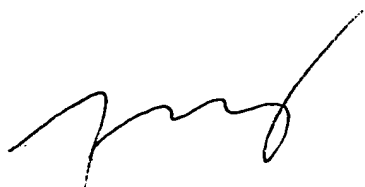
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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M. Wang



Ted M Wang  
Examiner  
Art Unit 2611